

WHAT IS CLAIMED IS:

1. A control apparatus for a vehicle comprising:
  - an engine that generates power through combustion of fuel,
  - an automatic transmission that transmits a reverse input from a driving wheel to the engine and automatically performs a shifting to a speed selected among a plurality of forward speeds each having a different speed ratio;
  - a brake control system that electrically controls a braking force of a wheel brake; and
  - a controller that causes the brake control system to control the braking force of the wheel brake such that a predetermined deceleration is established upon a coast downshifting of the automatic transmission during running of the vehicle in a coast state where a throttle valve of the engine is substantially fully closed.
2. A control apparatus for a vehicle according to claim 1, further comprising a hydraulic power transmission system disposed between the automatic transmission and the engine for power transmission using fluid and having a lock-up clutch, wherein:
  - the controller engages the lock-up clutch upon establishment of a predetermined lock-up engagement condition including at least a condition where the vehicle is running in the coast state; and
  - the controller executes a fuel-cut control for stopping a fuel supply upon establishment of a predetermined fuel-cut condition including at least a condition where the vehicle is running in the coast state, and an engine speed is equal to or higher than a predetermined value.
3. A control apparatus for a vehicle according to claim 2, wherein the hydraulic power transmission system comprises one of a torque converter and a fluid coupling.
4. A control apparatus for a vehicle according to claim 1, wherein the controller serves to control the braking force of the wheel brake so as to establish a predetermined target deceleration when the wheel brake is operated through a braking operation of a vehicle operator.
5. A control apparatus for a vehicle according to claim 1, wherein the controller serves to increase the deceleration by increasing the braking force of the wheel brake upon the coast downshifting in response to a downshifting command from the vehicle operator.

6. A control apparatus for a vehicle according to claim 2, wherein the controller serves to control the braking force of the wheel brake so as to establish a predetermined target deceleration upon one of an ON/OFF timing of the fuel cut control and an ON/OFF timing for engagement of the lock-up clutch.

5 7. A control method for a vehicle including an engine that generates power through combustion of fuel, an automatic transmission that transmits a reverse input from a driving wheel to the engine and automatically performs a shifting to a speed selected among a plurality of forward speeds each having a different speed ratio, a brake control system that electrically controls a braking force of a wheel  
10 brake, the method comprising causing the brake control system to control the braking force of the wheel brake such that a predetermined deceleration is established upon a coast downshifting of the automatic transmission during running of the vehicle in a coast state where a throttle valve of the engine is substantially fully closed.

15 8. A control method for a vehicle according to claim 7, wherein a hydraulic power transmission system that is disposed between the automatic transmission and the engine for power transmission using fluid and having a lock-up clutch is provided, the method comprising:

20 engaging the lock-up clutch upon establishment of a predetermined lock-up engagement condition including at least a condition where the vehicle is running in the coast state, and

executing a fuel-cut control for interrupting a fuel supply upon establishment of a predetermined fuel-cut condition including at least a condition where the vehicle is running in the coast state, and an engine speed is equal to or higher than a predetermined value.

25 9. A control method for a vehicle according to claim 7, wherein the braking force of the wheel brake is controlled so as to establish a predetermined target deceleration when the wheel brake is operated through a braking operation of a vehicle operator.

30 10. A control method for a vehicle according to claim 7, a deceleration is increased by increasing the braking force of the wheel brake upon the coast downshifting in response to a downshifting command from the vehicle operator.

11. A control method for a vehicle according to claim 8, wherein the braking force of the wheel brake is controlled so as to establish a predetermined target

deceleration upon one of an ON/OFF timing of the fuel cut control and an ON/OFF timing for engagement of the lock-up clutch.